National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ANSI/NCSL Z540-1-1994
ISO 9002:1987

Scope of Accreditation

CALIBRATION LABORATORIES **NVLAP LAB CODE 105000-0**

OAK RIDGE METROLOGY CENTER
P.O. Box 2009
Oak Ridge, TN 37831-7670
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Phone: 423-574-2707 Fax: 423-574-2802
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URL: http://www.ornl.gov/orcmt.mfgqual

DIMENSIONAL

NVLAP Code: 20/D03
Gage Blocks, Steel Only

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
0.010 to 0.090	2.4 μin	Mechanical Comparison
0.01 to 1.000	1.8 μin	Mechanical Comparison
2.0 to 4.0	2 μin + 0.8 x 10^{-6}; L is length in inches	Mechanical Comparison

NVLAP Code: 20/D05
Length

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
0 - 1.35 m	(0.3 + 0.4L) micrometers; L is length in meters	Step and End Gages using M-60 Coordinate Measuring Machine
0 - 1.2 m	(0.3 + 0.4L) micrometers; L is length in meters	Step and End Gages using M-48 Coordinate Measuring Machine

March 31, 2001

Effective through

David F. Alderman

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Grid Plates

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
600 mm x 800 mm	0.6 μm + 0.45 Lμm; L is length in meters	CMM (optical)

NVLAP Code: 20/D18
Gears

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
to 6" Diameter	0.9 μm	Involute Profile
to 6" Diameter and Infinite Lead	0.8 μm	Tooth Alignment
to 6" Diameter and 99" Lead	0.9 μm	Tooth Alignment
to 6" Diameter and 32" Lead	1.1 μm	Tooth Alignment
to 6" Diameter and 16" Lead	1.2 μm	Tooth Alignment
to 6" Diameter and 11" Lead	1.4 μm	Tooth Alignment
to 6" Diameter (pin offset)	0.7 μm	Pin Master
to 6" Diameter (pin diameter)	0.5 μm	Pin Master
to 6" Diameter (pin roundness)	0.3 μm	Pin Master

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TIME AND FREQUENCY

NVLAP Code: 20/F01
Frequency Dissemination

Range	*Best Uncertainty (±)in Hz* note 1	*Remarks*
1 MHz, 5 MHz, 10 MHz	1.01×10^{-10}	Comparison using FMS
1 MHz, 5 MHz, 10 MHz	5.3×10^{-10}	Comparison
1 Hz to < 1 MHz	$(1 \times 10^{-6} + 0.1$ Hz) note 2	Direct Reading
1 MHz to 10 MHz	1×10^{-8} note 2	Direct Reading
> 10 MHz to 1 GHz	1×10^{-7} note 2	Direct Reading

MECHANICAL

NVLAP Code: 20/M08
Mass

Range	*Best Uncertainty (±)* note 1	*Remarks*
30 kg	95 mg	
20 kg	41 mg	
10 kg	19.4 mg	

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5 kg	14.5 mg
2 kg	13.0 mg
1 kg	1.31 mg
500 g	0.66 mg
200 g	0.29
100 g	0.136
50 g	0.072
20 g	0.038
10 g	0.029
5 g	0.0083
2 g	0.0052
1 g	0.0052
500 mg	0.0040
200 mg	0.0037
100 mg	0.0036
50 mg	0.0036
20 mg	0.0036
10 mg	0.0036

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5 mg	0.0036
2 mg	0.0036
1 mg	0.0036

THERMODYNAMICS

NVLAP Code: 20/T07
Resistance Temperature Devices

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
0.01 °C to 29.7646 °C	0.001 °C	Comparison

1. Represents an expanded uncertainty using a coverage factor, k=2
2. Realizable uncertainty depends on frequency being measured, customer requirements, and suitability of customer's equipment.

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